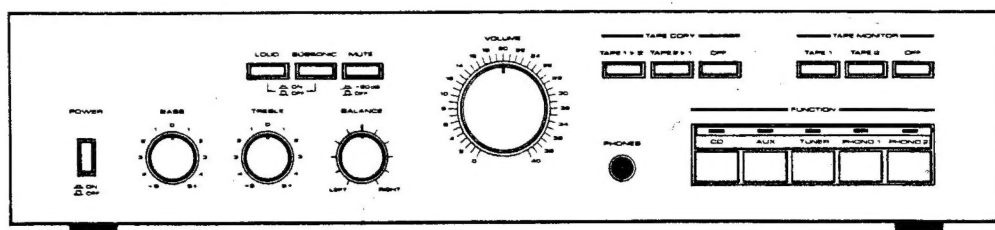


# Service Manual

## MODELS

LA1000 STEREO PREAMPLIFIER



# LA 1000 STEREO PREAMPLIFIER

## SPECIFICATIONS

### Amplifier Section

Continuous Max. Output Voltage is 8 Volts Per Channel, Min., at 47 Kohms from 20Hz to 20kHz with no more than 0.02% total harmonic distortion.

- Input (Sensitivity/Impedance)
  - Phono 1, 2 ..... 2.5mV/47K $\Omega$
  - Tuner, Aux, CD, Tape 1, 2 Play ..... 150mV/47K $\Omega$
- Phono Overload Level (T.H.D. 0.05%, 1kHz) ..... 280mV
- Output (Level/Impedance)
  - Tape 1, 2 Rec ..... 150mV/2.2K $\Omega$
- Frequency Response
  - Phono 1, 2 (RIAA Equalization) ..... 20Hz to 20kHz  $\pm$  0.5dB
  - Tuner, Aux, CD, Tape 1, 2 Play ..... 20Hz to 80kHz  $\pm$  3dB
- Tone Control
  - Bass (100Hz) .....  $\pm$  10dB
  - Treble (10kHz) .....  $\pm$  10dB
- Loudness Control (Volume Control set at -40dB Position) ..... +6dB (100Hz), +4dB (10kHz)
- Subsonic Filter ..... 15Hz (6dB/Oct)
- Muting ..... -20dB
- Hum & Noise (IHF, Short-Circuited, A Network)
  - Phono 1, 2 ..... 88dB
  - Tuner, Aux, CD, Tape 1, 2 Play ..... 100dB

### Miscellaneous

Power Requirements ..... AC220V, 50 Hz  
 Power Consumption ..... 16W  
 Dimensions ..... 420(W) x 88(H) x 330(D)mm  
 Weight (without package) ..... 4.6kg

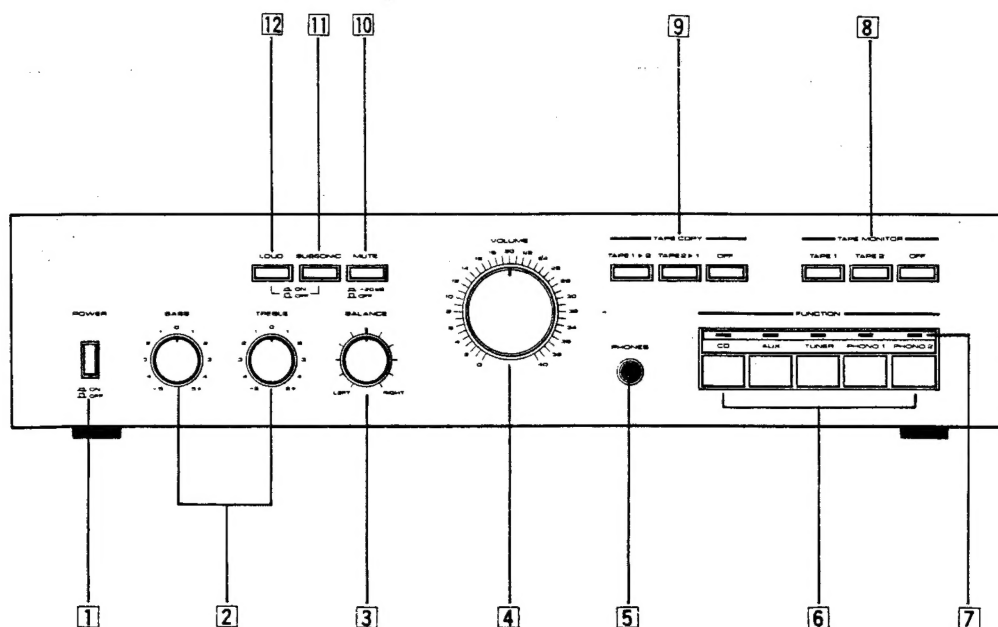
### Furnished Parts

Operating Instructions ..... 1  
 Connection Cord ..... 1

### Note:

- Specifications and design subject to possible modification without notice due to improvements.
- Measured pursuant to the Federal Trade Commissions Trade Regulation rule on Power Claims for Amplifier.

## FRONT PANNEL FEATURES



## 1. POWER SWITCH

Press to on position to turn on the pre-amplifier. Upon power up, a muting circuit presents a short delay in order to suppress the sometimes annoying sound present at switch-on.

## 2. BASS AND TREBLE CONTROLS

Use these controls to adjust the bass and the treble. If you turn the bass control clockwise from its center position, you will be able to emphasize the sound in the low-frequency range. Conversely, turning the bass control counter clockwise from the center position, you will attenuate the sound.

Use the treble control to adjust the sound in the high-frequency range in the same manner.

## 3. BALANCE CONTROL

Use this control to balance the volume of the left and right channels.

## 4. VOLUME CONTROL

Use this control to adjust the output level to the speakers and headphones. Turn it clock wise to increase the output level. No sound will be heard if you set it to "0".

## 5. HEADPHONE JACK

Plug the headphones into this jack when you want to listen through your stereo headphones.

Besure to turn down the volume level before plugging in the headphones. Turn up the volume level to a comfortable listening level once the headphones are adjusted.

## 6. FUNCTION SELECTOR

Use this selector to select the program source. When set, the function indicator above the panel corresponding to the position of the function selector will light up.

- CD : Select when you wish to listen to a Compact Disc Player.
- AUX : Select when listening to a program source which is connected to the AUX jacks.
- TUNER : Select when listening to radio broadcasts from the tuner.
- PHONO 1, 2: Select either Phono 1 or Phono 2 when playing a record on the corresponding turntable.

## 7. FUNCTION INDICATORS

The CD, AUX, TUNER, PHONO 1, 2 function indicators light up in accordance with the position of the function selector.

## 8. TAPE MONITOR SWITCH

Use these buttons to select the program source which is being reproduced.

TAPE 1: Select to monitor a recording or a tape being played back on the tape deck which is connected to the TAPE 1 jacks.

TAPE 2: Select to monitor a recording or a tape being played back on the tape deck which is connected to the TAPE 2 jacks.

OFF : Select whenever you are not playing back a tape or monitoring a recording.

## 9. TAPE COPY SWITCH

Use these switches when using two tape decks to copy recorded tapes or edit tapes. This switch is otherwise kept at the OFF position.

TAPE 1 ► 2: When playing back the tape on a deck connected to the TAPE 1 jacks and recording (copying) on a deck connected to the TAPE 2 jacks.

TAPE 2 ► 1: When playing back the tape on a deck connected to the TAPE 2 jacks and recording (copying) on a deck connected to the TAPE 1 jacks.

OFF: Set to this position when not copying.

## 10. MUTE SWITCH

Set this switch to -20dB to attenuate the audio output indicated by the volume control by 20dB.

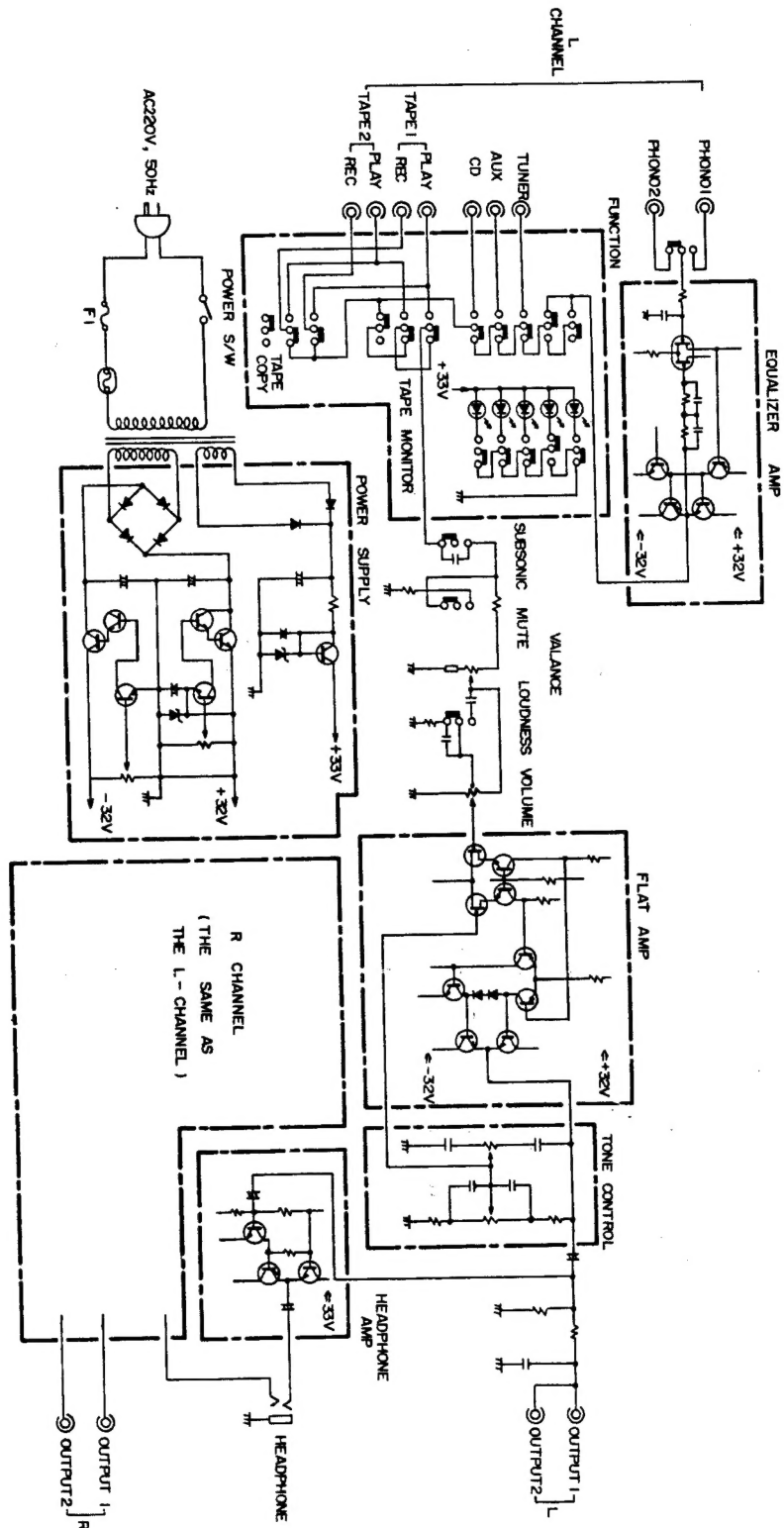
## 11. SUBSONIC FILTER SWITCH

When depressed, the subsonic filter (15Hz cut-off) reduces turntable rumble, record warp noise and other ultra low frequency noise.

## 12. LOUDNESS SWITCH


This compensates for human hearing characteristics by boosting the bass and treble response at low volume listening levels to achieve a more pleasing tone balance.

# BLOCK DIAGRAM






## EXPLODED VIEW PARTS LIST

### Note:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks \*\* and \*.  
\* \* GENERALLY MOVES FASTER THAN \*  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "O" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

### Parts List of Exploded View

1. NAC-121	Volume Knob
2. NAC-120	Rotary Knob
3. NNB-122	Front Panel
4. NNW-776	Push Escutcheon
5. NNW-774	Function Knob "A"
6. NNW-777	Power Escutcheon
7. NNW-711	Power Knob
8. NLA-156	Guide Nut
9. NNA-264	Panel Stay
 10. NSG-108-A	Power S/W
11. NNA-175	Side Stay
12. NNA-177	Canter Frame
13. NNW-676	PCB Holder
14. NNF-226	Trans Frame
 15. NTT-146	Power Trans
16. NCC-101	Rear Panel
17. 406-000-009-009	Strain Relief Bushing
 18. NDG-022	AC Power Cord
19. NNE-035	Bonnet Case
20. NKE-005	Ground Terminal
21. NWM-137	Main PCB Ass'y
22. NWM-115	Control PCB Ass'y
23. NNW-775	Function Knob "B"
24. NNW-1074	LED Escutcheon
25. NND-032	Bottom Plate
26. NNW-050	Foot

## ADJUSTMENTS

### DC Voltage Control


1. Adjust VR401 for 32V (to within  $\pm 0.1V$ ) between terminal No. 3 and ground.
2. Adjust VR402 for -32V (to within  $\pm 0.1V$ ) between terminal No. 4 and ground.

### PHONO DC Balance

1. Adjust VR101 (L) for 0V (to within  $\pm 0.1V$ ) between terminal No. 1 and ground.
2. Adjust VR102 (R) for 0V (to within  $\pm 0.1V$ ) between terminal No. 2 and ground.

# ELECTRICAL PARTS LIST






## Notes:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.  
Ex. 1. When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).  
560Ω = 56 × 10<sup>1</sup> → 561..... RD¼ PS561J  
47 kΩ = 47 × 10<sup>3</sup> → 473..... RD¼ PS473J  
0.5 Ω → 0R5..... RNZHOR5K  
1 Ω → 010..... RS1P010K  
Ex. 2. When there are 3 effective digits (such as in high-precision metal film resistors).  
5.62kΩ = 562 × 10<sup>1</sup> → 5621..... RN¼ SR5621K
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks \*\* and \*.  
\*\*GENERALLY MOVES FASTER THAN\*  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "O" are not always kept in stock. Their delivery time may be longer than usual if they may be unavailable.


## Miscellaneous Parts List P.C. BOARD ASSEMBLES





Mark	Symbol & Description	Part No.
	AF Assembly	NWM-137-0
	Control Assembly	NWM-115-0

## OTHERS

Mark	Symbol & Description	Part No.
	C423 Power Capacitor (0.01/400WV)	NCG-002-0
	T1 Power transformer	NTT-146-A
	FU1 Fuse	NEK-103-0
	S201 Power Switch	NSG-026-0
	AC Power Cord	NDG-022-0

## AF Assembly (NWM-137-0) SEMICONDUCTORS

Mark	Symbol & Description	Part No.
**	Q101, Q102	2SK146GR
**	R201, Q202, Q203, Q204	2SK117GR
**	Q304, Q306, Q307	KTA817A-Y
**	Q107, Q108, Q109, Q110, Q111, Q112, Q209, Q210, Q211, Q212, Q404	KTA970BL
**	Q117, Q118, Q217	KTA970GR
	Q218, Q406	
**	Q405	KT834Y
**	Q305, Q308, Q309	KTC1627A-Y
**	Q103, Q104, Q105, Q106, Q113, Q114, Q205, Q206, Q207, Q208, Q213, Q214, Q401	KTC2240BL

Mark	Symbol & Description	Part No.
**	Q115, Q116, Q215, Q216, Q403	KTC2250GR
**	Q301, Q302, Q303, Q310, Q311	KTC3199GR
	Q402, Q407	KTD880GR
*	D307 Zener diode	IN959A/B
	D405 Zener diodes	IN966A/B
	D408 Zener diode	IN973A/B
	D308, D401, D404, D406, D407, D101, D102, D210-D206	IN4002
	D306, D308, D310	IS2473

## RELAYS

Mark	Symbol & Description	Part No.
**	RL 1, RL2	NSR-014-0

## CAPACITORS

Mark	Symbol & Description	Part No.
	C302	CEA010M 50L
	C307-C310	CEA100M16L
	C424	CEA100M35L
	C305, C306	CEA101M35L
	C407, C408, C419	CEA101M50L
	C405, C406, C412, C413, 4C418	CEA102M50L
	C311, C312	CEA220M16L
	C304	CEA220M50L
	C109, C110	CEA221M10L

# Mark Symbol & Description

C303  
C410, C420  
C301  
C421  
C125-C128, C 227, C 228  
C121, C122, C225, C226  
C107, C108  
C209, C210  
C105, C106  
C123, C124  
C119, C120  
C113, C114  
C211, C212, C213, C214  
C103, C104  
C101, C102, C207, C208  
C229, C230  
C115- C118  
C111, C112  
C401-C404, C409, C411,  
C414-C417, C422

# Part No.

CEA221M25L  
CEA221M35L  
CEA3R3M50L  
CEA331M35L  
CEA470M50L  
CEANP4R7M25  
CQMA124J50  
CQMA152J50  
CQMA333J50  
CQMA392J50  
CQMA472J50  
CQMA473J50  
CCDSL101J50  
CCDSL122J50  
CCDSL221J50  
CCDSL331J50  
CCDSL470J50  
CCDSL560J50  
CKDYB103K50

# RESISTORS

## Mark Symbol & Description

VR101, VR102, Semifixed Volume  
VR401, VR402, Semifixed Volume  
R115, R116  
R119, R120  
R121, R122  
R123, R124  
R125, R126  
R127, R128  
R410  
R334, R335 R338, R339  
R117, R118  
R233, R234, R312  
R135-R138, R332, R333  
R105, R106, R145, R146, R265  
R266, R328, R329  
R131, R132  
R314, R315  
R411, R221, R222  
R406, R407

## Part No

NCP-034-0  
NCP-045-0  
RN¼ PM5RIF  
RN¼ PM47R5F  
RN¼ PM42R2F  
RN¼ PM1001F  
RN¼ PM1181F  
RN¼ PM2672F  
RD½ PS100J  
RD½ PS222J  
RD½ PS272J  
RD¼ PM101J  
RD¼ PM102J  
RD¼ PM104J

R239-R242, R318-R321  
R113, R114  
R209, R210, R213, R214  
R308  
R223, R224, R303  
R330, R331  
R129, R130  
R225, R226  
R107, R108  
R109-R112, R201-R208  
R211, R212, R243, R244  
R263, R264  
R304, R340  
R405  
R322, R323  
R311, R409  
R408  
R403, R404  
R305

RD¼ PM220J  
RD¼ PM221J  
RD¼ PM222J  
RD¼ PM223J  
RD¼ PM224J  
RD¼ PM242J  
RD¼ PM243J  
RD¼ PM273J  
RD¼ PM303J  
RD¼ PM331J

R139-R142, R249-R252  
R147, R148  
R237, R238, R309  
R101, R102, R307  
R143, R144  
R313, R336, R337  
R227, R228, R231, R232, R306  
R310  
R133, R134  
R401, R402  
R103, R104  
R245-R248  
R235, R236  
R229, R230  
R302

RD¼ PM332J  
RD¼ PM333J  
RD¼ PM362J  
RD¼ PM391J  
RD¼ PM392J  
RD¼ PM432J  
RD¼ PM433J  
RD¼ PM434J  
RD¼ PM470J  
RD¼ PM471J  
RD¼ PM472J  
RD¼ PM473J  
RD¼ PM560J  
RD¼ PM563J  
RD¼ PM622J  
RD¼ PM681J  
RD¼ PM752J  
RD¼ PM820J  
RD¼ PM821J  
RD¼ PM822J  
RD¼ PM823J  
RD¼ PM911J

## OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (OUTPUT)	NKB-003-0
	6P pin jack(PHONO 1, 2 TUNER, AUX, CD, TAPE 1, 2)	NKB-004-0
	JH, Terminal 3P	NKP-028-0
	JC, JE, JF, Terminal 7P	NKP-032-0
	JA, Terminal 8P	NKP-033-0
	JB, JD, Terminal 9P	NKP-034-0
	Jack (PHONE)	NKN-026-0
	Fuse holder	AKR-035-0
	Heat sink	ANH-575-A
	Screw	VBZ30P080FMC
**	P.C.B.	NNP-290-A

## Control Assembly

## SEMICONDUCTORS

Mark	Symbol & Description	Part No.
**	D310 Zener diode	In967A/B
**	D301-D305 LED	KLR114E

## SWITCH

Mark	Symbol & Description	Part No.
**	S1 Push Switch	NSG-082-0
**	S2, S3 Push Switch	NSG-083-0
**	S4 Push Switch	NSG-084-0

## RESISTORS

Mark	Symbol & Description	Part No.
**	VR1, Rotary Volume	NCS-072-0
**	VR2, Rotary Volume	NSC-073-0
**	VR3, VR4, Rotary Volume	NCS-074-0
	R257, R258	RD 1/4 PM105J
	R253, R254	RD 1/4 PM222J
	R259, R260	RD 1/4 PM223J
	R261, R262	RD 1/4 PM392J
	R215, R216	RD 1/4 PM473J
	R219, R220	RD 1/4 PM512J
	R217, R218	RD 1/4 PM562J
	R255, R256	RD 1/4 PM821J

## CAPACITOR

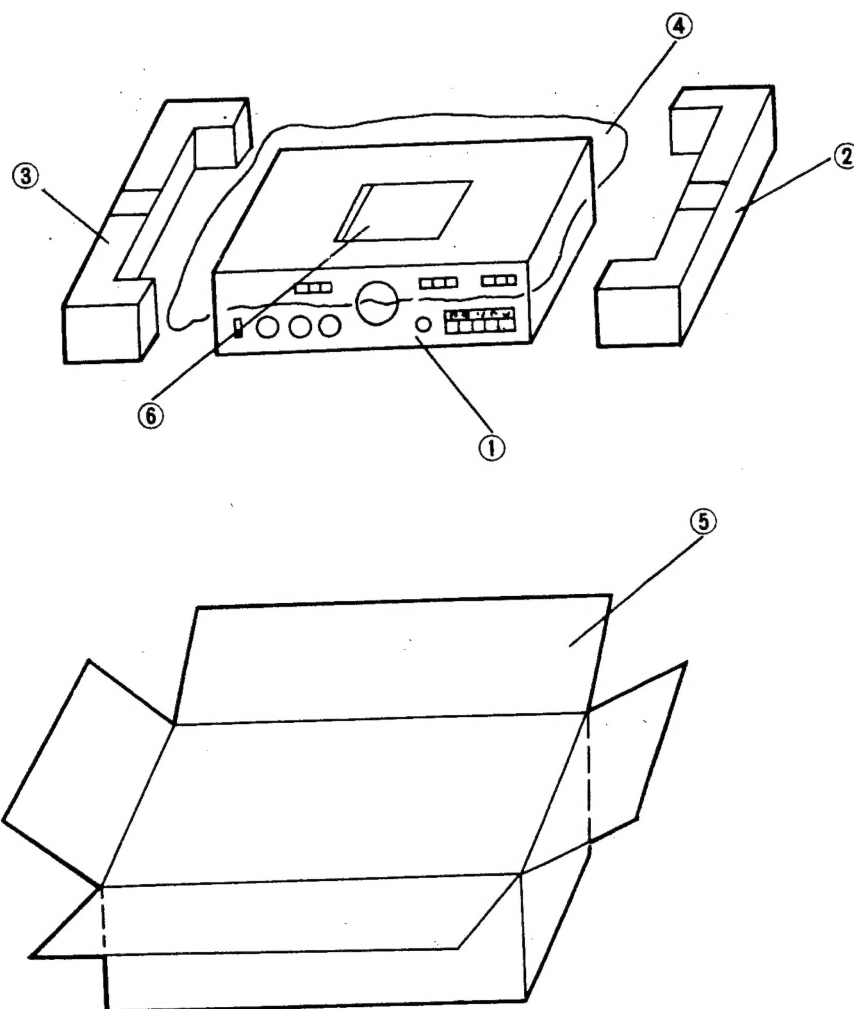
Mark	Symbol & Description	Part No.
	C223, C224	CEANP100M16
	C205, C206	CQMA124J50
	C219, C220	CQMA153J50
	C217, C218	CQMA183J50
	C201, C202	CQMA224J50
	C215, C216	CQMA332J50
	C221, C222	CQMA 823K50
	C203, C204	CCDSL361J50

## OTHERS

Mark	Symbol & Description	Part No.
**	P.C.B.	NNP-291-A
	LED HOLDER	NNW-773-B

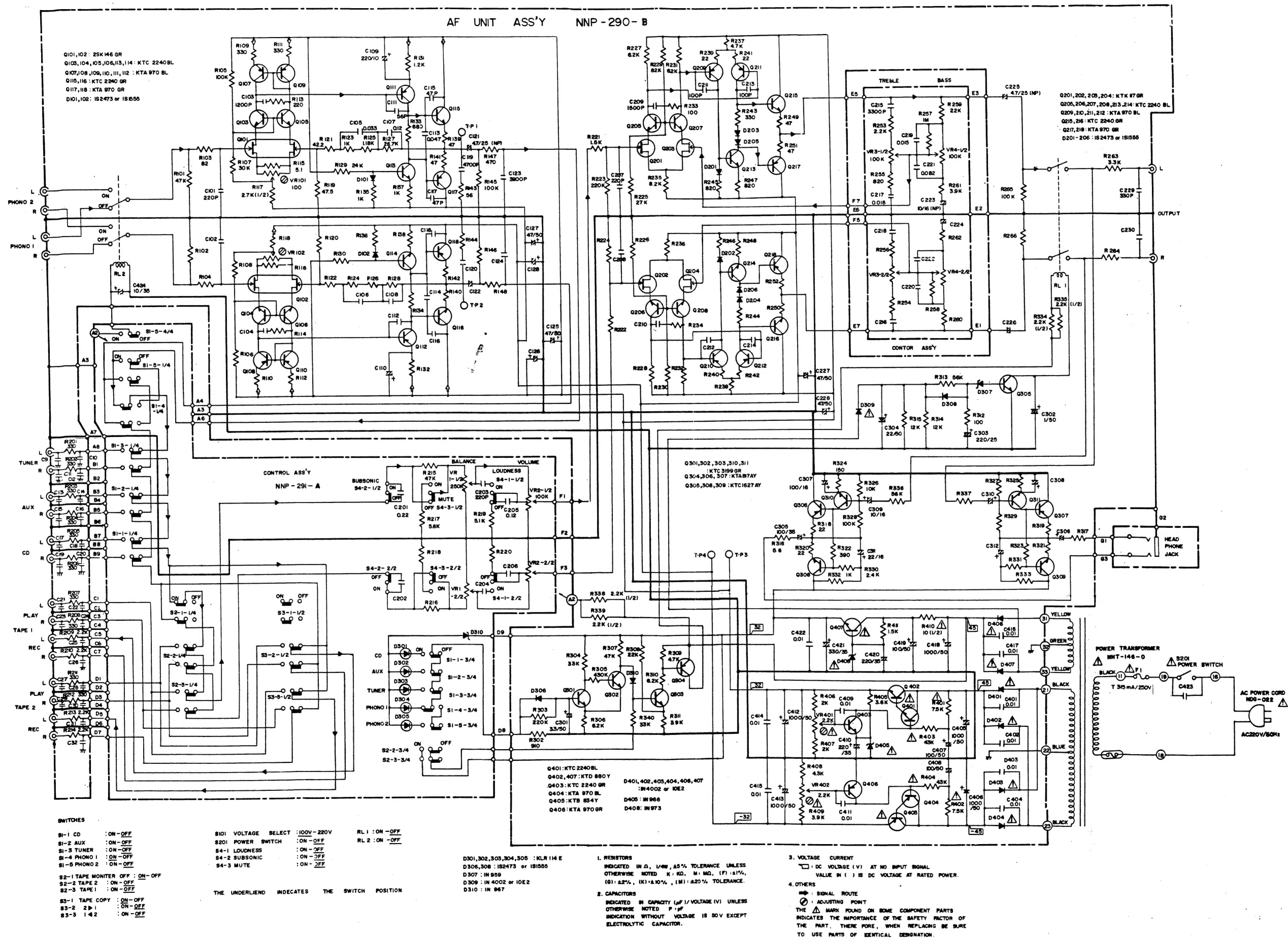


## PACKING

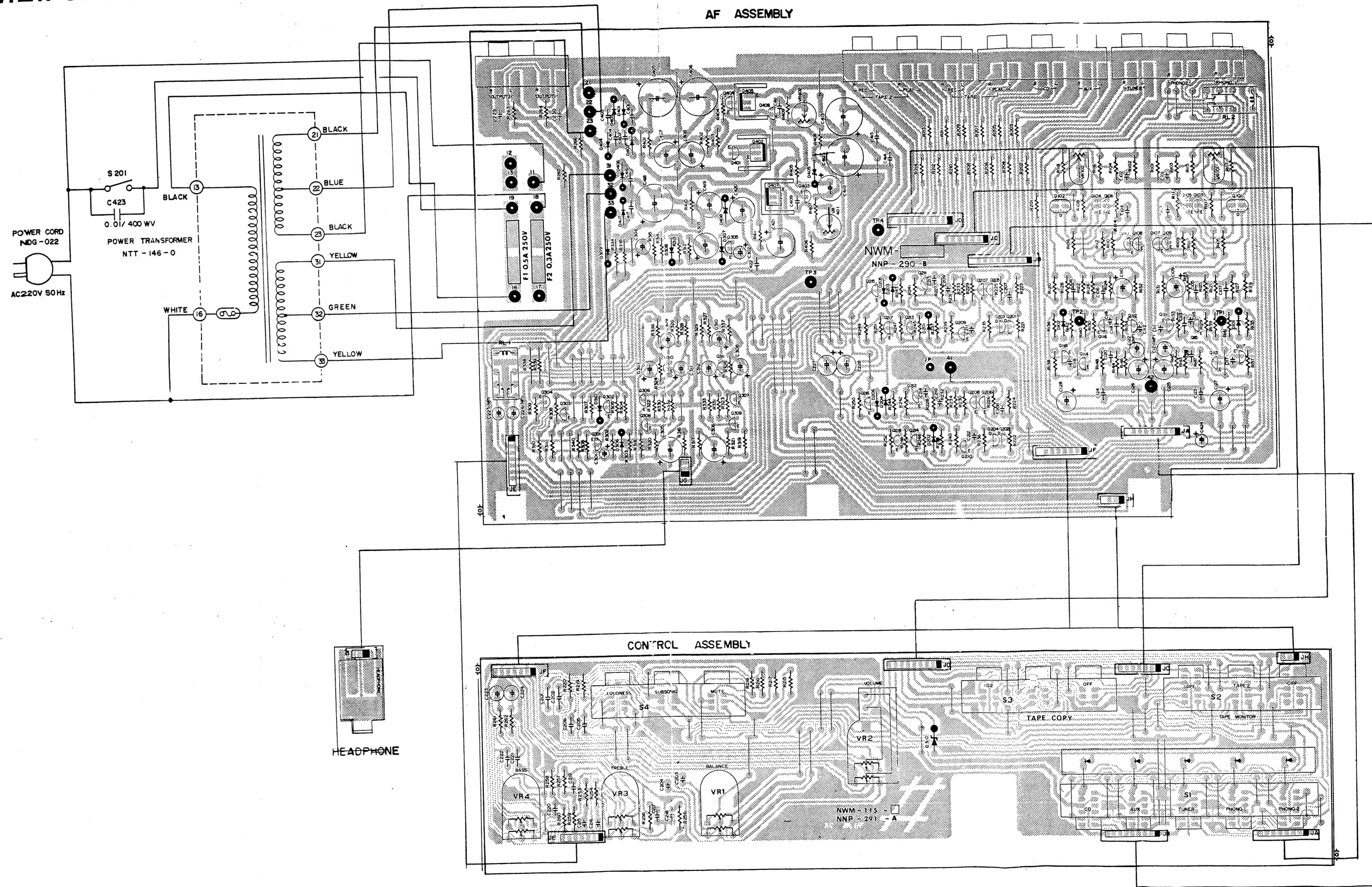


Mark	No.	Part No.	Description
	1		Set
	2	NHA-198-0	Side pad (L)
	3	NHA-198-0	Side pad (R)
	4	NHL-007-0	Poly Sheet
	5	NHG-275-0	Packing Case
	6	NRA-207-0	Instruction Manual

## SCHEMATIC DIAGRAM



# TOP VIEW OF P.C. BOARDS POINT-TO-POINT WIRING DIAGRAM



EXPLODED VIEW

